

Montana

Montana had the seventh smallest population and the twelfth smallest utility generating capability in the Nation in 1996. Nearly 53 percent of Montana's utility electricity is generated by hydroelectric/other plants but coal generation is also very prevalent at 47 percent. Only a very small amount of electricity, 0.1 percent, is generated by oil and gas and there are no nuclear facilities in the State. The largest plant is the Colstrip coal-fired plant which is operated by the Montana Power Company, the largest investor-owned utility in Montana. (The Colstrip power plant alone was responsible for significantly increasing the State's production of coal when the facility came on-line in the 1970s.)¹ The second through the fifth largest plants in the State are hydroelectric facilities, owned and operated by the Bureau of Reclamation, the U.S. Army Corps of Engineers, or the Washington Water Power Company.

There were 39 utilities in Montana in 1996. The majority of them were cooperatives which is typical of a rural State with a low population density; its seventh smallest population occupies the fourth largest area. There were 3 Federal utilities, 1 public, and 5 investor-owned, the latter of which accounted for almost 62 percent of retail sales.

While the coal and hydroelectric generating capability in Montana remained about the same from 1991 to 1996, coal generation and electric power industry consumption of coal declined by approximately 17.5 percent while hydroelectric generation and electric power industry consumption increased by 24 percent. The large percentage of hydroelectric capability (52 percent) is due to the State's many rivers which are the sites of approximately 82 hydroelectric units that were operating in 1996. In addition, part of the Powder River Basin is located in the southeastern portion of the State. Therefore, Montana coal-fired plants have easy access to the basin's low-sulfur coal, which accounts for approximately half of the State's coal production.² These are two of the main reasons that the average price of electricity in Montana, 4.72 cents per kilowatthour, was

fifth lowest in the Nation. These factors also explain why Montana's emissions of sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon dioxide (CO₂) are comparatively very low. In fact, the Clean Air Act Amendments of 1990 did not specify any Montana plants to begin compliance with stricter emissions standards for SO₂ and NO_x. The State's emissions ranked forty-fourth for SO₂ and thirty-ninth for NO_x and thirty-eighth for CO₂. Concentrations of these pollutants per square mile ranked forty-seventh for SO₂ and forty-sixth for NO_x and CO₂. SO₂ emissions in Montana declined slightly from 1986 to 1991 and then again from 1991 to 1996. NO_x emissions were less in 1996 than they were in 1986 although they had a substantial increase in 1991. CO₂ emissions were also up in 1991, but had declined back toward 1986 totals in 1996.

In 1996, Montana utilities generated 26 billion kilowatthours of electricity. The industrial sector accounted for over 45 percent of retail sales in 1996, which was a drop of 7.7 percent from 1991 levels. The residential share was 28.3 percent and the commercial share was 23.9 percent, both of which increased since 1991 by 9.7 percent and 13.8 percent, respectively. Overall, since 1986, the annual growth rate in utility electricity retail sales in Montana was slightly on the negative side of 0.0 percent. The State is an exporter of electricity with a net difference of 12 billion kilowatthours between generation and sales.

For a State with relatively low electricity prices, Montana has been rather aggressive in its approach to restructuring its electricity industry. The Montana Public Service Commission (PSC) has been progressing rapidly in its efforts since it began to study competition in early 1997. In June 1998, the PSC approved a plan to phase-in competition. Beginning on July 1, 1998, Montana's largest customers (with loads over 1 megawatt) were able to choose their energy supplier. Beginning in November 1998, 5 percent of residential and small consumers were able to select their power supplier under a pilot program. Full retail access should be complete by April 2000.³

¹ Energy Information Administration, *State Coal Profiles*, DOE/EIA-0576 (Washington, DC, January 1994), p. 59.

² Energy Information Administration, *Coal Distribution Report January-December 1996*, DOE/EIA-0125(96/4Q) (Washington, DC), Table 34.

³ Energy Information Administration, Status of State Electric Utility Deregulation Activity, http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html.

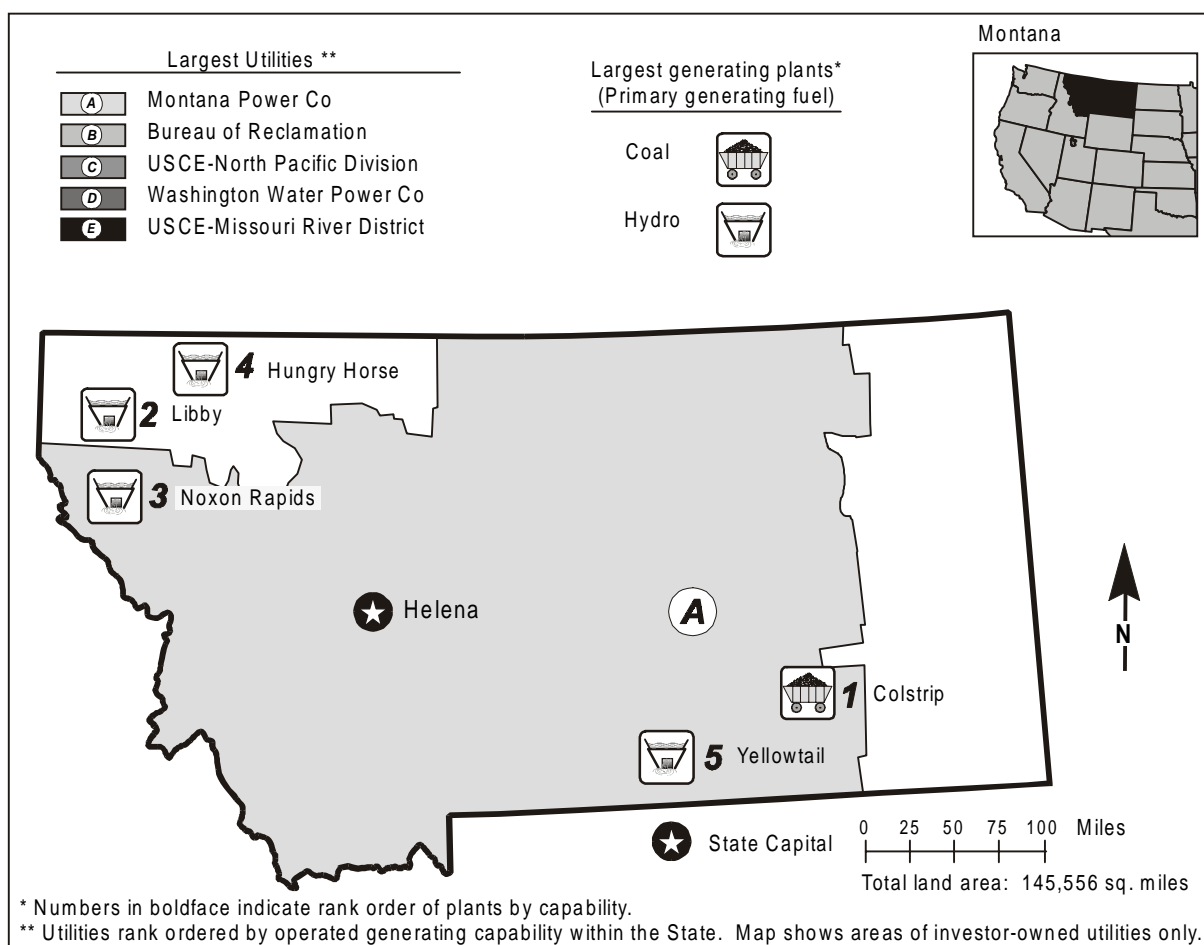


Table 1. 1996 Summary Statistics

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s)		WSCC/MAPP	Utility		
Net Exporter or Importer		Exporter	Capability (MWe)	4,943	39
State Primary Generating Fuel		Hydro	Generation (MWh)	26,039,141	38
Population (as of 7/96)	876,684	44	Average Age of Coal Plants	16 years	
Average Revenue (cents/kWh)	4.72	^a 5	Average Age of Oil-fired Plants	24 years	
Industry			Average Age of Gas-fired Plants	33 years	
Capability (MWe)	5,064	^b 34	Average Age of Nuclear Plants	--	
Generation (MWh)	26,837,425	^b 33	Average Age of		
Capability/person			Hydroelectric Plants	38 years	
(KWe/person)	5.78	^b 2	Average Age of Other Plants . . .	28 years	
Generation/person			Nonutility^c		
(MWh/person)	30.61	^b 2	Capability (MWe)	121	40
Sulfur Dioxide Emissions			Percentage Share		
(Thousand Short Tons)	22	44	of Capability	2.4	38
Nitrogen Oxide Emissions			Generation (MWh)	798,284	38
(Thousand Short Tons)	49	39	Percentage Share of		
Carbon Dioxide Emissions			Generation	3.0	36
(Thousand Short Tons)	16,240	38	-- = Not applicable.		
Sulfur Dioxide/sq. mile (Tons)	0.15	47			
Nitrogen Oxides/sq. mile (Tons)	0.34	46			
Carbon Dioxide/sq. mile (Tons)	111.57	46			

Table 2. Five Largest Utility Plants, 1996

Plant Name	Type	Operating Utility	Net Capability (MWe)
1. Colstrip	Coal	Montana Power Co	2,060
2. Libby	Hydro	USCE-North Pacific Division	604
3. Noxon Rapids	Hydro	Washington Water Power Co	554
4. Hungry Horse	Hydro	Bureau of Reclamation	428
5. Yellowtail	Hydro	Bureau of Reclamation	250

Table 3. Top Five Utilities with Largest Generating Capability, and Type, Within the State, 1996
(Megawatts Electric)

Utility	Net Summer Capability	Net Coal Capability	Net Oil Capability	Net Gas Capability	Net Nuclear Capability	Net Hydro/Other Capability
A. Montana Power Co	2,733	2,216	5	70	--	443
B. Bureau of Reclamation	728	--	--	--	--	728
C. USCE-North Pacific Division	604	--	--	--	--	604
D. Washington Water Power Co	554	--	--	--	--	554
E. USCE-Missouri River District	213	--	--	--	--	213
Total	4,832	2,216	5	70	--	2,542
Percentage of Industry Capability	95.4	--	--	--	--	--

-- = Not applicable.

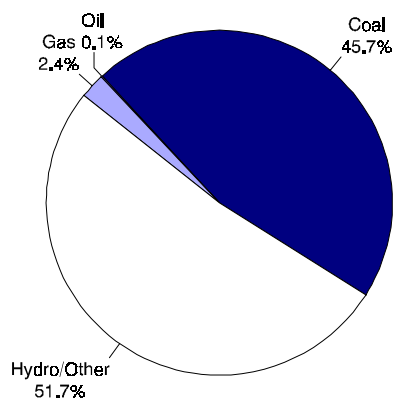
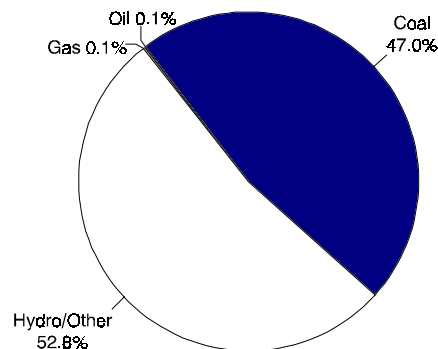
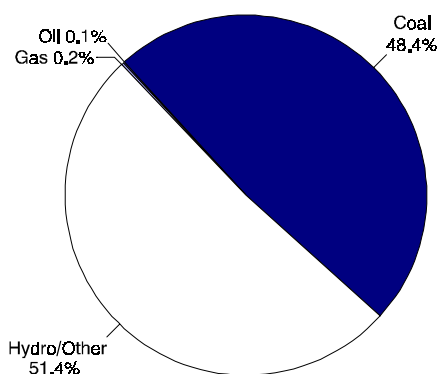
Figure 1. Utility Generating Capability by Primary Energy Source, 1996**Figure 2. Utility Generation by Primary Energy Source, 1996****Figure 3. Energy Consumed at Electric Utilities by Primary Energy Source, 1996**

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1986, 1991, and 1996
(Megawatts Electric)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	2,303	2,260	2,260	45.9	46.8	45.7
Oil	24	--	5	0.5	--	0.1
Gas	120	120	120	2.4	2.5	2.4
Nuclear	--	--	--	--	--	--
Hydro/Other	2,573	2,449	2,558	51.3	50.7	51.7
Total Utility	5,019	4,828	4,943	100.0	100.0	100.0
Total Nonutility	W	W	121	--	--	--

-- = Not applicable. W = Withheld.

Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1986, 1991, and 1996
(Thousand Kilowatthours)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	11,469,259	16,131,955	12,242,093	51.1	57.3	47.0
Oil	8,514	17,598	18,256	(s)	0.1	0.1
Gas	52,044	24,370	38,217	0.2	0.1	0.1
Nuclear	--	--	--	--	--	--
Hydro/Other	10,918,494	11,983,405	13,740,575	48.6	42.6	52.8
Total Utility	22,448,311	28,157,328	26,039,141	100.0	100.0	100.0
Total Nonutility	W	W	798,284	--	--	--

-- = Not applicable. (s) = Nonzero percentage less than 0.05. W = Withheld.

Table 6. Electric Power Industry Consumption by Primary Energy Source, 1986, 1991, and 1996
(Quadrillion Btu)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	0.127	0.174	0.133	52.6	58.3	48.4
Oil	(s)	(s)	(s)	0.1	0.1	0.1
Gas	(s)	(s)	(s)	0.2	0.1	0.2
Nuclear	--	--	--	--	--	--
Hydro/Other	0.114	0.124	0.142	47.2	41.5	51.4
Total Utility	0.242	0.299	0.276	100.0	100.0	100.0
Total Nonutility	W	W	0.024	--	--	--

-- = Not applicable. (s) = Nonzero value less than 0.0005. W = Withheld.

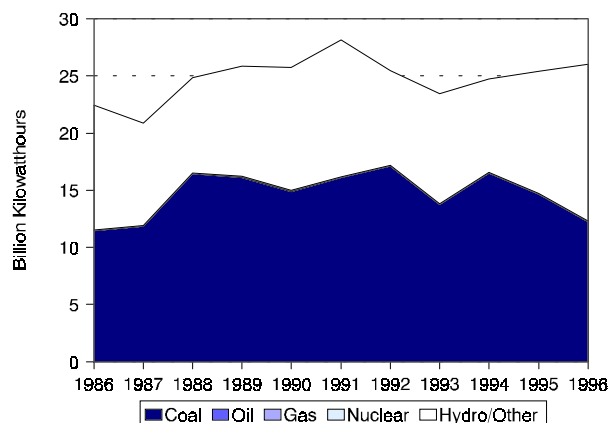
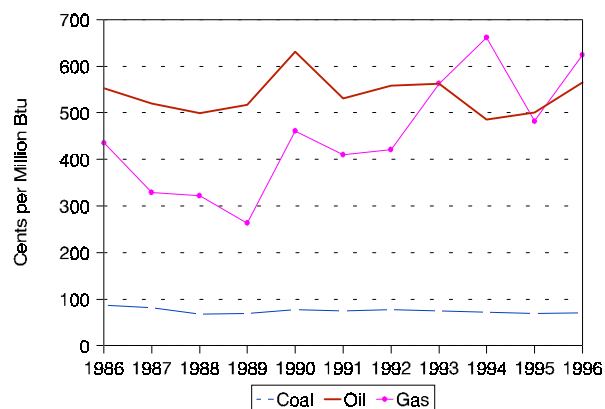
Figure 4. Utility Generation of Electricity by Primary Energy Source, 1986-1996**Figure 5. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986-1996**
(1996 Dollars)

Table 7. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986, 1991, and 1996
(Cents per Million Btu, 1996 Dollars)

Fuel	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Coal	87.1	75.5	70.5	-2.1
Oil	553.0	530.2	564.9	0.2
Gas	435.5	410.1	624.3	3.7

Table 8. Electric Power Industry Emissions Estimates, 1986, 1991, and 1996
(Thousand Short Tons)

Emission Type	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Sulfur Dioxide	24	23	22	-0.8
Nitrogen Oxides ^d . .	54	73	49	-0.9
Carbon Dioxide ^d . . .	14,581	20,466	16,240	1.1

Figure 6. Estimated Sulfur Dioxide Emissions, 1986-1996

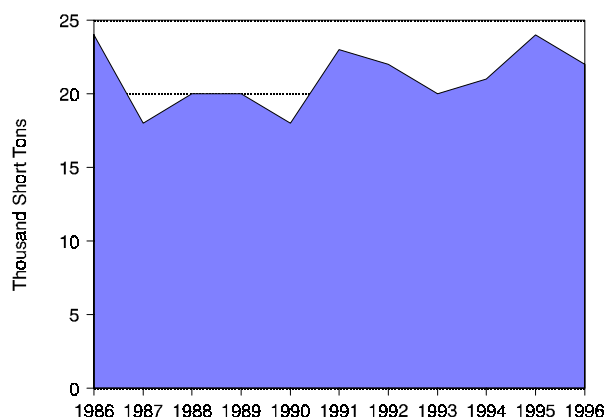


Figure 7. Estimated Nitrogen Oxide Emissions, 1986-1996

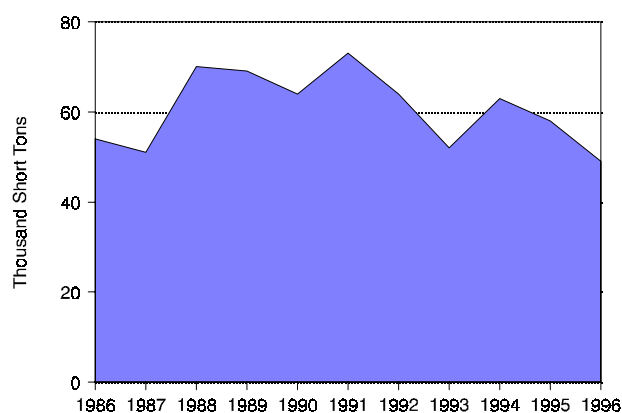


Figure 8. Estimated Carbon Dioxide Emissions, 1986-1996

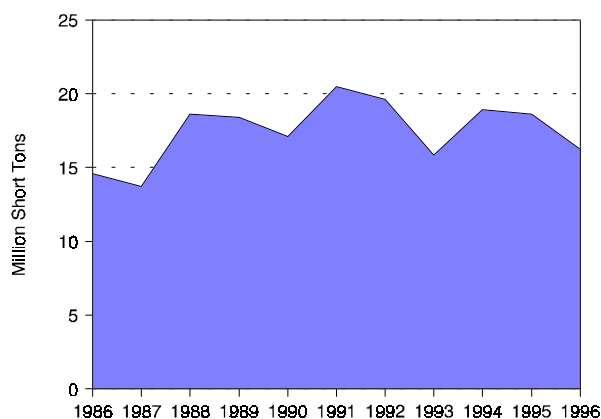


Table 9. Utility Retail Sales by Sector, 1986, 1991, and 1996
(Megawatthours)

Sector	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Residential . .	3,213,799	3,458,893	3,910,516	2.0	23.3	25.8	28.3
Commercial	2,402,763	2,818,850	3,298,600	3.2	17.4	21.0	23.9
Industrial . . .	6,150,334	6,622,098	6,305,683	0.2	44.5	49.4	45.6
Other	2,053,115	506,759	304,757	-17.4	14.9	3.8	2.2
Total	13,820,011	13,406,600	13,819,556	-0.0	100.0	100.0	100.0

Table 10. Utility Retail Sales Statistics, 1986, 1991, and 1996

	Investor-Owned Utility	Public	Federal	Cooperative	Total
Item	1986				
Number of Utilities	6	1	2	31	40
Number of Retail Customers	297,180	14,316	22	95,571	407,089
Retail Sales (MWh)	7,280,895	230,798	4,669,295	1,639,023	13,820,011
Percentage of Retail Sales	52.7	1.7	33.8	11.9	100.0
Revenue from Retail Sales (thousand 1996 \$) ^e	382,734	11,445	82,294	109,394	609,814
Percentage of Revenue	62.8	1.9	17.4	17.9	100.0
	1991				
Number of Utilities	5	1	3	30	39
Number of Retail Customers	303,816	897	14,272	100,544	419,529
Retail Sales (MWh)	8,140,517	13,945	3,476,408	1,775,730	13,406,600
Percentage of Retail Sales	60.7	0.1	25.9	13.3	100.0
Revenue from Retail Sales (thousand 1996 \$) ^e	420,791	706	77,013	116,262	624,321
Percentage of Revenue	67.4	0.1	13.9	18.6	100.0
	1996				
Number of Utilities	5	1	3	30	39
Number of Retail Customers	332,061	877	14,889	112,228	460,055
Retail Sales (MWh)	8,497,966	14,517	1,999,571	3,307,502	13,819,556
Percentage of Retail Sales	61.5	0.1	14.5	23.9	100.0
Revenue from Retail Sales (thousand 1996 \$) ^e	436,355	792	59,715	155,747	652,609
Percentage of Revenue	66.9	0.1	9.2	23.9	100.0